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ETHNIC DIFFERENCES IN THE PREVALENCE
OF HEPATITIS DELTA AGENT IN DJIBOUTI

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Short Report

Ethnic differences in the prevalence of hepatitis delta agent in Djibouti

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Djibouti is a small country in the Horn of Africa, whose inhabitants belong to several ethnic groups. The north and south-west of the country is inhabited by Afars, an ethnic group different from the Somali Issas, who mostly live in the south-eastern part of the country. In addition, many people living in Djibouti originated from other countries (e.g. Ethiopia, Yemen, India, Europe).

Clinicians working in northern Djibouti have noticed for a long time that some young people might experience severe episodes of hepatic jaundice, which could lead to their premature death (Abbatte, unpublished observations). In southern Djibouti, however, such a phenomenon had never been recorded.

In October 1987 an extensive epidemiological serosurvey was conducted in Djibouti, involving mostly healthy young adults. Although the data collection was carried out in Djibouti city, situated in the south, the 656 subjects came from all over the country. Each subject had a medical interview and examination and his or her serum was tested for antibodies to various hepatitis viruses by commercially available enzyme-linked immunosorbent assays (ELISA) (Abbott Laboratories, North Chicago, USA). 11 sera were positive for antibodies to the delta agent (delta-Ag), all in healthy subjects also positive for hepatitis B virus (HBV) surface antigen. The prevalence of anti-delta antibodies was much higher in males than in females (3.2% versus 0.7% in the whole study population; $P < 0.02$).

There was a striking difference in the prevalence of delta seropositivity according to ethnic groups. While the lowest infection rates were found in people originally from Ethiopia (2/231; 0.9%) and in people belonging to the Somali ethnic groups (2/204; 1%), the highest infection rates were recorded in the Afar people, since 6 of the 114 tested Afars were found delta-Ag positive (5.3%). All the positive Afar individuals were men, thus bringing the delta infection rate in male Afars to 7.7%, a value 10 times higher than the delta infection rate in the rest of the population combined (0.7%; $P < 0.001$). As shown in the Figure, the delta prevalence in HBsAg positive Afar males was 50%, much higher than the corresponding

rates for the combined non-Afars (10.5%; $P < 0.01$).

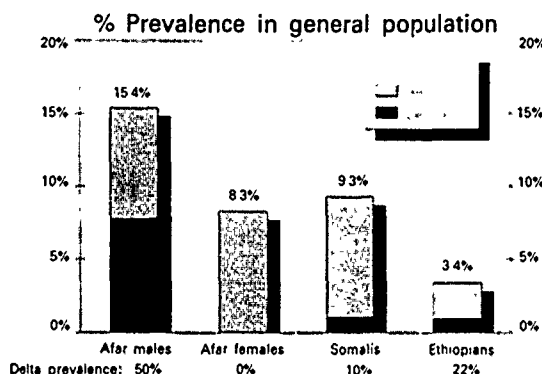


Figure. HBsAg and delta antibody positivity according to the 3 major ethnic groups in Djibouti, the Afar people being divided according to sex. Column heights show the percentage prevalence rates in the general population of HBsAg positivity (whole column) and of delta agent in the HBsAg positive subjects (column base). The values under the 4 columns give the percentage delta prevalence in the HBsAg positive subjects.

In an attempt to study the mechanisms whereby the 6 Afar males might have been infected by the delta agent, we investigated them in more detail. However, no uniform transmission pattern could be found. The median age of the 6 subjects was 40 years; 2 individuals remembered a long-ago episode of severe jaundice; 5 had received medical injections; 3 had been in hospital, 2 of them for tuberculosis; 3 had previously had dental work, none surgery, and 1 had received a blood transfusion. 3 subjects admitted to extramarital sexual relations or to previous episodes of a sexually transmitted disease; none had scarifications or tattoos; none had current hepatomegaly or other liver-related abnormalities on clinical examination.

Delta agent is a unique hepatitis virus, since it requires hepatitis B virus (HBV) for its expression. It is transmitted among humans in ways similar to HBV. Although delta infection is thought to be world-wide, its geographical distribution appears irregular among countries where serosurveys have been performed. No satisfactory explanation exists to account for these discrepancies (RIZZETTO, 1983).

Delta agent can replicate in all primate species that support the replication of HBV, including man, chimpanzees and gorillas (RIZZETTO *et al.*, 1983). Baboons live freely in Djibouti and it is interesting that they are more abundant in north Djibouti, where the Afar people live. Could it be that these baboons are a natural animal reservoir for the delta agent and a source of infection for the Afar people, in particular Afar males, who are more exposed to monkey bites since they are more mobile?

Future work on the delta agent in Djibouti will need to clarify its transmission and epidemiology and to assess the intimate relationship of delta infection with the acute and chronic liver diseases occurring in young Afar people.

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Requests for reprints should be addressed to Research Publications Division, US Naval Medical Research Unit No. 3, F.P.O., New York, NY 09527-1600, USA.

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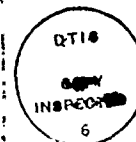
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